



Resilience through policy integration in Europe? Domestic forest policy changes as response to absorb pressure to integrate biodiversity conservation, bioenergy use and climate protection in France, Germany, the Netherlands and Sweden

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ABSTRACT

In this paper, we analyse how and why domestic forest policies in Europe have responded to pressures to integrate biodiversity conservation, climate and bioenergy policies. We use content analysis of documents and interviews to analyse change and stability in domestic forest policy goals, instruments and practices in France, Germany, the Netherlands, and Sweden over time. We find that decision-makers in forest policy and practice responded to pressure to integrate biodiversity into forestry through four different types of policy change outcomes and processes. Depending on the context, these responses included layering, drift, conversion and/or replacement. In all countries, the forest policy changes were driven by (partly shifting) coalitional politics and changes in external conditions. Domestic forest policy regimes shifted from 'timber production' towards 'multifunctional', 'sustainable forest management' or 'biodiversity' primacy, and then back to 'timber harvesting'. Forest policy also integrated bioenergy and climate change policies in order to minimise pressure by EU and national biodiversity policy sectors and to enable 'timber harvesting' (re-)turns in forest policy. We conclude that policy integration processes and the shifts in forest policy they contain refer to a sectoral resilience, that is, the ability of forest policy to react to, minimise, and absorb pressures to integrate biodiversity conservation policies.

1. Introduction

Policy integration has become an important topic of research in policy sciences (Howlett and Rayner, 2007), environmental governance (Jordan and Lenschow, 2010), forest policy studies (Hogl et al., 2016), and several other academic disciplines. It is increasingly recognised as a fundamental principle for achieving sustainable development. In particular, it should change sectoral policymaking towards inter-sectoral coordination to address intertwined sustainability issues (Jordan and Lenschow, 2010). It should help decision makers in policy and practice strike a balance between environmental protection and land use with regard to the fulfilment of current and future economic, environmental and social goals (Briassoulis, 2004). Integration of conservation and sustainable use of natural resources (e.g., biodiversity, forest, soil and water) is suggested as a must for societies that strive for enhanced sustainability (Kamieniecki, 2000, 186).

Despite its recognition in policymaking and society, recent reviews of the state of the art suggest that achieving (environmental) policy

integration remains a challenge (Jordan and Lenschow, 2010; Hogl et al., 2016). Natural resource policymaking remains characterised by struggles among competing policy sectors (Sotirov and Memmler, 2012) that often result in policy incoherence (Howlett and Rayner, 2007) and/or policy fragmentation (Winkel and Sotirov, 2016). In particular, an interesting and somewhat paradoxical puzzle of forest policy (dis)integration can be found in Europe. We summarise its basic features in the following as a case in point to study in this paper.

The treaties establishing the European Union (EU) make no provision for a common EU forest policy, and no Pan-European Legally Binding Agreement on Forests could be agreed thus far (Edwards and Kleinschmit, 2013; Winkel and Sotirov, 2016). Forest policy in Europe largely remains a countries' competency. Sovereignty and long history of national and regional forest laws and regulations remain central. Established at EU and national levels, other policy sectors including agriculture and rural development, environmental and nature protection, renewable energy, and climate change have formulated a variety of legally-binding objectives, rules, and decision-making competencies

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that are directly relevant to forests and forestry (Pülzl et al., 2013). These forest-relevant EU policies put pressure on domestic forest policy to integrate their specific sectoral objectives that often contradict not only with each other but also with forest policy objectives. For example, regional development and climate change mitigation through afforestation and timber production under the EU Rural Development Regulation can contradict with forest biodiversity conservation within and outside the so-called Natura 2000 protected areas under the EU Habitats and Birds Directives. Bio-energy use through increased woody biomass production and forestry intensification supported by the EU Renewable Energy Directive can contradict with the forest biodiversity policy objectives. Paradoxically, despite various calls for vertical (between EU, national and regional levels) and horizontal (between the forest and the other forest-relevant policy sectors) coordination and integration, European forest policy fragmentation has increased over time (Winkel and Sotirov, 2016).

Over the last two decades, ‘sustainable forest management’ (SFM) and ‘multifunctional forestry’ (MFF) were set as main goals of the non-legally binding Pan-European and EU forest strategies as well as several national forest policies and laws (Sotirov et al., 2014). SFM and MFF contain a core belief *within* forest policy in the possibility to integrate economic, ecological and social demands on forests, and strike a just balance between people, forest ecosystems, and other land use sectors (MCPFE, 1993). An increasing body of knowledge reveals major *internal* obstacles to the delivery on these integrative expectations. According to scientific studies, SFM and MFF prioritise economic objectives of forest policy (timber production) and/or rather mask than balance increasing conflicts with other policy sectors and societal demands (Glück, 1987, 2001; McCool and Stankey, 2004; Wang, 2002; Sotirov, 2010). Recent research shows salient conflicts in 10 European countries between demands for timber production on the one hand, and forest biodiversity conservation, energy wood production, and climate protection on the other (Sotirov et al., 2013, 6).

These observations reveal an interesting forest policy (dis)integration puzzle. While being exposed to *outside* pressure by other policy sectors to integrate with their forest-relevant objectives, domestic forest policies in Europe apparently lack *internal* capability to coordinate with them. The observation is that SFM and MFF tend to prioritise sectoral forest policy that is partly at odds with the other policy sectors. This in turn increases the outside integration pressure on forest policy. Thus, policymakers within the forest sector face significant pressure of integrating a variety of often competing forest-relevant policy objectives without producing forest policy disintegration. This puzzle raises open questions of how and why domestic forest policies have responded to integration pressures coming from other policy sectors in Europe.

This paper seeks to address these main research questions by analysing outputs and processes of forest policy integration in France, Germany, the Netherlands and Sweden over time. We focus on the domestic level as main unit of analysis for two reasons. First, questions of forest policy (dis)integration at the Pan-European and EU levels (Winkel and Sotirov, 2016; cf. Edwards and Kleinschmit, 2013) have already been addressed in the scientific literature as shortly summarised above. Second, national states still hold the main political authority over forest and forest-relevant policy in Europe. In result, much remains unknown about how and why domestic forest policy has responded to integration pressures. In terms of substantive scope, we analyse the integration of biodiversity conservation, bioenergy use and climate change policies into forest policy. As outlined above, these are the most relevant policy sectors that put integration pressure on forest policy.

In the remainder of this paper, we first outline an analytical and theoretical framework that will guide the policy analysis and describe the material and methods used. Next, we present and discuss empirical evidence about coalition-driven forest policy change processes that have emerged in response to integration pressures in the four case study countries. In the last chapter, we compare the evidence within and

across the countries, link them to the analytical and theoretical framework through hypotheses and theory building, and draw conclusions on the ‘how’ and ‘why question’ of forest policy integration in Europe.

2. Analytical and theoretical framework

In the positivist academic literature, policy integration is defined as a “process of [...] coordinating various policies [...] aiming to achieve multiple complementarities and synergies” (Briassoulis, 2004, 13). However, the degree of complementarity and coherence between policy sectors remains a normative and/or empirical question (Bornemann, 2007). From analytical perspective, systematic research into policy integration addresses rather questions of what policy is being integrated into what other policy (*content*), and how and why these policies are being integrated (*outputs, processes*) (Jordan and Lenschow, 2010).

Recent scholarship shows that policy integration reassembles a highly political process that pits policy sectors against each other. The quest for policy integration requires transformative changes that “challenge the boundaries of existing policies” (Degeling, 1995, 293). The politics of policy integration hence involves struggles between policy sectors and their actors over shifts in sectoral policies, and their political power (Derksen et al., 2009; Feindt, 2010; Winkel and Sotirov, 2016). Transformative shifts potentially result in changed goals, instruments, beliefs, actions, and power of policy actors. This is as (sectoral) policies refer to ‘policy paradigms’ (Hall, 1993) that are comprised of specific sets of goals and instruments that reflect distinct actors’ beliefs about problems, causes, and solutions that guide their actions (Sabatier, 1988; Sotirov and Winkel, 2016). Power is defined in this paper as the actors’ position of formal decision-making authority (e.g., legislative, executive, juridical powers) and/or the ability to influence decision-making through other political resources (e.g., funding, information, public opinion, boycotts) (Sabatier and Weible, 2007). The overall set of policy goals and instruments, institutional rules, the underlying ideas, interests, power and practices of actors refers to a policy regime (May et al., 2006; Hall, 2010). In the light of this knowledge, policy integration is defined in this paper as the politics of policy change.

To identify and describe *how* domestic forest policies have reacted to integration pressure and what types of policy changes have emerged over time, we used an analytical framework suggested by Rayner and Howlett (2009). Rooted in historical institutionalism (Hall and Taylor, 1996), the framework distinguishes four possible types of policy change outputs and outcomes through policy integration: ‘replacement’, ‘layering’, ‘drift’ and ‘conversion’. These types refer to shifts either in policy goals or instruments, or in both, or shifts through replacement of existing goals and instruments by new ones. The definition and main features of these types are summarised in Table 1.

Consistent with historical institutionalist view on different orders of change (Hall, 1993), the four types differ in their scope of policy change and stability. ‘Replacement’ is the type of policy integration with the greatest scope of policy change. ‘Layering’ is also a comprehensive change process; unlike ‘replacement’, it adds a new policy paradigm to the old one; it does not replace it. ‘Drift’ is less comprehensive process where goals change, but instruments and/or their use do not. ‘Conversion’ comes with the smallest scope of change: instruments and/or their use change where goals do not (cf. Mahoney and Thelen, 2010). This ordinal classification potentially shows to which extent one policy is integrated into another one, that is, how transformative a policy integration process is.

In our empirical research, policy integration-induced policy change was examined through mapping out shifts in policy outputs (goals, instruments) and practices. Policy *goals* refer to core beliefs that guide policy and practice (e.g., primacy of timber production vs. nature conservation) and/or operationalised objectives that a policy formally aims at (e.g. 50% mixed forests by 2020; 10% set aside forests by 2020). Policy *instruments* are means and procedures that are applied to achieve policy goals (Cashore and Howlett, 2007). They can be classified into regulatory (obligations, prohibitions, sanctions), financial (subsidies,

Table 1
Typology of outputs and processes of policy change through policy integration.

Theoretical foundation		
Policy change theory: e.g., Rayner and Howlett (2009); cf. Hall (1993, 2010); Hall, 1993		Institutional change theory: e.g., Mahoney and Thelen (2010); cf. Hall (1993, 2010); Hall, 1993
<i>Types:</i>		
Replacement	A process whereby policies are fundamentally re-structured through the replacement of existing goals and instruments by new ones	The removal of existing rules and the introduction of new ones
Layering	A process whereby new goals and instruments are added to an existing policy regime without abandoning previous ones	The introduction of new rules on top of or alongside existing ones
Drift	A process where the goals of the policy change without changes in instruments or their use	The changed impact of existing rules due to shifts in the external conditions
Conversion	A process that involves changes in policy instruments or their use while holding policy goals constant	The changed enactment of existing rules due to their strategic redeployment

taxes, tariffs, fines, market incentives), persuasive (information, advice, training) and organisational (structural reforms) instruments (Vedung, 1998). The variety of instruments can be put on a continuum between mandatory ‘hard’ law (e.g., command-and-control regulations, structural reforms) and voluntary ‘soft’ law (e.g., subsidies, markets, information). *Practices* refer to “doings, sayings and things in a specific field of activity” (Arts et al., 2014). They include forest management behaviour. Practices are guided by the policy beliefs that policy actors share and adhere to.

To explain *why* domestic forest policies have changed to integration pressure, we drew on theoretical work in historical institutionalism that underpins Rayner and Howlett’s framework. Historical institutionalism holds that policy actors involved in policy-oriented conflicts are the main drivers or barriers of institutional and policy changes. The behaviour of policy actors as agents of change or stability is assumed to be guided by their normative and instrumental beliefs, called also ‘policy paradigms’ (Hall, 1993) or ‘means-end-schemas’ (Hall, 2010). It is assumed that policy actors are actively seeking particular shifts or stability of the ambiguous and/or contested rules of policies (Hall, 1993, 2010) and/or given institutions (Streeck and Thelen, 2005; Mahoney and Thelen, 2010) in the course of political struggle over policy issues. The main proposition is that actors and their coalitions will support policy changes when the latter resonate with their policy core beliefs, and oppose or minimise shifts when they are contrary to their beliefs (Hall, 2010).

The success of policy actors as agents of change or stability depends on their ability to line up coalitions in favour or against a particular shift in policies, rules or practices, and to maintain or attain power to defend their beliefs (Hall, 2010). The ‘politics of ideas’ is intrinsic to the processes of coalition building and power struggles that underpin policy and institutional change. Exogenous events (e.g., changes in government, socio-economic developments, and disruptive events) are intervening factors that structure the politics of ideas through the (re-)distribution of power among dominant and inferior coalitions. Beliefs, coalitions, power, and external events are the key influencing factors that shape the process of institutional and policy change over time (Hall, 2010; Mahoney and Thelen, 2010). The main proposition is that transformative policy changes come about when a previously dominant actors’ coalition loses power and is replaced by a competing coalition within the politics of policy ideas and fragmentation of political authority (Hall, 1993).

Based on concepts and propositions, we developed the following theoretical expectations that we observed in the case studies. First, forest policy integration is likely to be a policy change process that is driven by politics of ideas and power struggles between competing coalitions that are conditioned by external factors (e.g., changes in government). Second, when dominant forestry actors have to respond to pressure to integrate other policy sectors (e.g., biodiversity conservation, climate change, renewable energy) into forest policy, they will support changes resonating with their (production-oriented) policy beliefs, and oppose or minimise shifts that are contrary to them. Third, the ability to oppose or minimise contradicting shifts will depend on the ability of forestry actors to build strong status-quo oriented coalitions and to maintain their dominant power position against rival coalitions.

Fourth, the more forestry actors build strong coalitions and the more powerful they remain, the less transformative changes through policy integration (in decreasing order from replacement, layering, drift and conversion) will emerge.

So far, no clearer theory has been developed that links the four types of policy integration outputs and processes according to Rayner and Howlett with the causal explanations of coalition-driven policy and institutional change according to Hall and others. We hence sought to build hypotheses from observations in case studies guided by the aforementioned historical institutionalist propositions to address the ‘how’ and ‘why’ questions of forest policy integration. We applied a theory-guided case study research to study the links between the variety of policy outputs and their casual processes as outlined below.

3. Material and methods

This paper is informed by a theory-guided small-N comparative research and qualitative methodology. This methodology establishes a framework for interpreting how parallel processes of change play out in different ways within and across contexts (Collier, 1993; Yin, 2009). Accordingly, cases that matched from one point of view but contrasted from another were selected. This combination of most similar and most different cases assured that the contexts of analysis were analytically equivalent (Collier, 1993). Because of this and the fact that this qualitative comparative method does not rely on intuitive regression and causal inference in the correlation terms of quantitative comparative methods (Hall, 2006), it is not susceptible to selection bias (Brady and Collier, 2004). Cases were also selected because they had accessible evidence and topical relevance (George and Bennett, 2005, 25).

The research was carried out in four countries including France, Germany, the Netherlands and Sweden. These country case studies were selected to cover a variety of political, socio-economic and ecological contexts within Europe. For example, the Netherlands and Sweden represent the two most different cases in terms of forest resources and the socio-economic role of the forest sector (low vs. high), but share a similar political system (parliamentary constitutional monarchy/neo-corporatism). France and Germany are similar in terms of forest resources and the socio-economic role of the forest sector (medium) but they diverge as regards their political systems (centralised state/presidential republic vs. federal state/parliamentary republic). In the case of Germany, forest policy integration was analysed at the federal level and at the level of the federal state of Bavaria; this is a typical example of how forest policy authority in Germany is vested across multiple levels of governance.

We applied a policy analysis guided by historical institutionalist theory to trace forest policy change processes within each case over time. The causal inference of this systematic type of theory-guided process tracing (Hall, 2006) arose from the evidence drawn from few in-depth observations of cases (within-analysis) and cross-comparison in terms of outcomes, processes, and explanatory variables. The potentially higher number of the latter was reduced through employing

the theoretical propositions and expectations rooted in historical institutionalism (Collier, 1993) as outlined above.

To compare and analyse the evidence across all cases, we applied the analytical technique of qualitative cross-case synthesis (Yin, 2009). In a first step, overall patterns of similarities or differences across all cases were searched and extracted from the cases. Narratives were written and word tables created that displayed these findings. In a second step, we analysed whether different groups of cases appeared to share some similarity and deserve to be considered instances of the same type of general case. Such observations rose the possibility of a typology of cases and building of hypotheses from the cases that can be very insightful for theory building and theory testing (George and Bennett, 2005; Hall, 2006). The cross-cases synthesis of the reported narratives and examination of word tables for cross-cases patterns relied on argumentative interpretation (Yin, 2009, 156–160) using analytic narratives with focus on theory (Bates et al., 1998).

The collection of empirical data included official policy documents (e.g., laws, policies, strategies), scientific literature (e.g., articles, reports) and other sources (e.g., publications, press releases of governmental and non-governmental organisations) related to forest policy and other forest-relevant policy sectors (e.g., biodiversity). In addition, semi-structured interviews with stakeholders in the four countries were carried out. Interviewees included political decision makers, public administrations in charge of forests, environment, and rural areas as well as public and private forest owners, timber and bioenergy industries, environmental NGOs, farmers, and scientists.

All documents ($N = 41$) and interviews ($N = 77$) were subject to qualitative content analysis based on common coding and analytical framework (Miles and Huberman, 1994; George and Bennett, 2005). The framework contained key categories such as ‘forest policy integration’, ‘change/stability in the forest policy regime’, ‘actors and their networks’, ‘political influence’, and ‘structural factors’. The analytical categories were based on the theoretical framework outlined above. During 2012–2013, the empirical data was collected and analysed by national researcher teams, including the authors of this paper. The analysed data was compiled in national case study reports following a common template. During 2014–2015, the data analysis was checked and completed by the authors, and verified by the national researcher teams. Based on this, within and cross-case analysis was carried out as outlined above.

4. Case studies of domestic forest policy integration in Europe

4.1. France

From 1950s to 1980s, domestic forest policy in France remained stable. The objectives of forest policy and law focused on timber production, promotion of afforestation and support for (private) forest owners’ economic management capacities (Sergent et al., 2013). Through the National Forestry Fund, the State Forest Administration managed subsidies that were the main instrument to implement the commodity-oriented objectives and beliefs. Established in 1946, the Fund was financed by a tax on timber loggers and the forest industry (Tissot and Kohler, 2013). Historically, the stability in domestic forest policy and practice has been the result of the control of a powerful ‘production’ coalition of state forest authorities, (big) non-state forest owners, forestry entrepreneurs and forest industry. These traditional forestry actors worked together based on common beliefs of sustained yield and economic sustainability in that “forests cannot exist without the timber sector and no timber sector could exist without forests”.¹

Since the 1987 Brundtland report on Sustainable Development, the 1992 Rio Conference on Environment and Development, the 1993 UN Convention on Biological Diversity, the 1992 EU Habitats Directive, and the 1990s Ministerial Conferences on the Protection of Forests in

Europe, environmental actors put pressure on the forest sector to integrate biodiversity conservation. These international and EU policy processes geared towards ecological sustainability triggered long debates in the forest policy arena that led to “an opposition between forest sector actors and ecologists, each fighting for the forest”.²

At the same time, an increasing contestation within the ‘production’ coalition occurred. Non-state forest sector actors questioned the legitimacy of the National Forestry Fund, and criticised the lack of efficient rules and procedures within the State Forest Administration. The distribution of public funds was seen as unfair and non-transparent for the timber industry and as expensive for non-state forest owners and consumers.

In response to the external pressures from biodiversity policies environmentalists and the internal contestations, the Ministry of Agriculture and its Directorate of Forestry and Wood adopted the Forest Reform Act in 2001 with the political support of the French Government. The Law introduced SFM and MFF into forest policy and law by stressing the equal importance of economic, ecological and social objectives. The 2001 Forest Reform Act introduced also Forest Territory Charters to promote inter-sectoral coordination towards SFM through strategic partnerships in forest management planning (Buttoud et al., 2011, 129).

In 1996, the Government had suspended the domestic implementation of the Natura 2000 network of protected areas under the EU Habitats Directive given the strong opposition by private forest owners, forest industry, hunters’ associations and farmers (Alphandéry and Fortier, 2001). At the end of the 1990s and early 2000, forest sector actors continued protesting Natura 2000 and other related biodiversity-relevant demands of environmentalists (e.g. deadwood, old-growth forests, broadleaves, wetland restoration) because they would “infringe upon profitability as they increase the costs of and hinder mechanized forestry, thinning and clear cuts”.³ Only in the middle of the 2000s, the controversy could be pacified through the empowerment of forest owners with the use of new instruments such as participatory decision-making (Winkel et al., 2015) and voluntary financial incentives (compensation contracts, property tax exemption). Natura 2000 areas were also mainly designated in low conservation value forests and/or forests not used for timber production (higher mountains, marshes, river banks, sand dunes) where no changes in forestry were needed and overcompensation often occurred (Hily et al., 2015).

Since the publication of their White Paper in 2002, forest sector actors have often criticised the growing environmentalists’ demands for integration of biodiversity goals into forestry through a segregative conservation based on forest set-asides. Forest owners claimed that these biodiversity goals would endanger traditional forestry. They argued that “close-to-nature forestry models still have to prove that they are ecologically sustainable but also economically profitable, where deep ecologists ignore this problem”.⁴

Fearing a loss of political influence, the traditional forest sector actors have remained opposed to a radical change of the domestic forest policy regime towards biodiversity conservation. This was because “forest owners have implemented a very intensive forestry model for almost five decades. They have turned over the soil with farming plough, they used almost the same pesticides and herbicides as in intensive farming, and they have doubled the forest yield per hectare without taking into account – and even sometimes by eradicating–biodiversity. How to convince them today that biodiversity is important?”⁵

In 2006, a Forest Action Plan was formulated to implement the EU Sustainable Forestry Action Plan and to integrate the National Biodiversity Strategy (2006–2010) in forest policy. A National Forest

² Interviewee F02.

³ Interviewee L01, similar in L11.

⁴ Interviewee L28, similar in L11.

⁵ Interviewee L01.

¹ Interviewee S10.

Programme for the period 2006–2015 was also developed. Similar to the Plan, the Programme included biodiversity alongside the goals of ‘production of marketable goods and services’ and ‘downstream in the forest and wood supply chain’ (MAP, 2006, 2). In 2007, environmental NGOs, the national federation of municipalities and private forest owners established a voluntary agreement to “*produce more wood while better preserving biodiversity*” (Sergent et al., 2013).

However, neither stringent targets nor particular implementing instruments but only information and research needs with regard to biodiversity conservation were formulated. According to interviewees,⁶ this was because state forest authorities and forest sector stakeholders sought to evade incompatibilities and conflicts between timber use and biodiversity conservation. They also felt that the concept of MFF would lead to stricter biodiversity regulations that would hinder the economic development of the forest sector. At the same time, forest sector actors argued that the ‘multifunctional turn’ in forest policy can achieve the new biodiversity goals through traditional forestry practices (e.g., timber production, afforestation) or the new land-use friendly forest biodiversity instruments (participatory management, funding contracts, tax reliefs). The economic primacy of timber production was re-emphasised in forest policy, law, and practice (Buttoud, 2004, 107).

In 2007, the French government organised an environmental summit (*Grenelle de l’environnement*) to define key policy objectives for sustainable development. An emphasis was put on the importance of the forest sector for achieving climate protection and renewable energy objectives through increased timber use. Forest sector actors approved these new environmental policy objectives towards green economy at a strategic meeting of the Superior Forestry Council. The government set particular wood mobilisation targets, mainly for private forests. The State Forest Administration had to define in regional plans priority areas for intensified timber harvesting and to establish regional wood energy observatories around biomass plants (Sergent, 2014, 497).

This ‘harvesting’ turn could be easily (re-)emphasised in domestic forest policy and law since timber production has remained the core forest policy objective. The “new” shift in forest policy objectives from SFM, MFF and biodiversity to timber use was also in line with the National Forest Programme. It had already indicated that “*France has rebuilt its forest resource and the harvest must now increase on the basis of sustainable use*” (MAP, 2006). In parallel, public forest managers, forest owners, forestry operators and forest industries considered the integrative Forest Territory Charters from 2001 as a threat to the economic development of the forest sector. Calling for more sectoral forest policy approach and referring to the new climate agenda, they successfully (re-)emphasised the objectives of increased timber harvesting for construction and wood energy use in the Charters (Sergent et al., 2013).

The new ‘harvesting turn’ in the forest policy regime increased the conflicts between timber use and biodiversity conservation (Neyroumande and Vallauri, 2011). This process pitted the ‘production’ coalition of forest sector actors against the ‘environmental’ coalition of NGOs, scientists and agencies. In this policy battle, the ‘production’ coalition retained its power over the ‘environmental’ coalition. Its dominance has been enabled by the political support that most French political decision-makers granted to the traditional forest policy regime. At the same time, the general public has rarely considered forestry and biodiversity as priority policy issues to engage with (Sergent et al., 2013).

4.2. Germany

4.2.1. Federal level

In the past, forest policy in Germany was a self-governed sector that blocked any impacts by other sectors. Together with private and municipal forest owners, forestry professional organisations and forest

industry, state forest services dominated forest policy. This ‘production’ coalition of traditional forest sector actors was held together by a shared core belief that forest must be used for sustainable timber production (Winkel and Sotirov, 2011). The state forest services were powerful because of their market domination, expertise and integration within the ministries of agriculture and forestry that held decision-making authority at the federal and state levels (Sotirov and Winkel, 2016).

MFF was integrated in the 1975 Federal Forest Act, and in the forest laws of the federal states during the 1980s, as the main objective of forest policy (Pistorius et al., 2012, 10). Still, the economic primacy of timber production has prevailed in forest policy and practice (Winkel and Sotirov, 2011). Forest law remained a stable framework of lax rules containing few minimalist obligations (e.g., reforestation after timber harvesting). The main implementing instruments included subsidies and advisory services for forest owners and forest industries.

Since the 1990s, a coalition of environmental NGOs and authorities challenged the dominance of the ‘production’ coalition. Environmental groups pushed for biodiversity conservation believing that forests in Germany were threatened by timber production oriented forestry (Sotirov and Memmler, 2012). Strategically using changes in the federal government (power shift from conservative/liberal to a social-democratic/green party coalition from 1998 until 2005), the ‘environmental’ coalition actors successfully put an ecological modernisation of the 1975 Federal Forest Act on the political agenda. They criticised the law as being too vague from nature conservation point of view and demanded the integration of legally-binding ecological obligations for ‘proper’ forest management (Winkel and Sotirov, 2011).

However, the forest sector actors successfully blocked the attempts of the ‘environmental’ coalition to change the Federal Forest Act. The ‘production’ coalition strategically used the veto power of the German Federal Council. At that time, the Council was dominated by federal states governed by conservatives and liberals oriented towards the policy status-quo (Sotirov and Winkel, 2016). Next to the checks and balances of federalism, forest sector actors counteracted the pressure for policy change by referring to the integrative nature of the forest law. They argued that the law already integrated definition of ‘proper’ forest management based on MFF.⁷ They also pointed to possibilities to receive state subsidies and conclude voluntary contracts for ecological aspects of forest management at the federal state level (Borrass et al., 2016).

In 2007, the German federal government approved a National Biodiversity Strategy to implement global (CBD) and EU (Habitats Directive/Natura 2000) biodiversity policies. Driven by the ‘environmental’ coalition, this document included a policy goal to set aside 5% of all forests and 10% of public forests in Germany for biodiversity conservation (BMU, 2007).

As a response, the ‘production’ coalition adopted a National Forest Strategy in 2011. The forest sector actors did not integrate the policy objective to set aside forests in the Strategy. Instead, they referred to the ‘multifunctional’ and ‘integrative’ nature of forest laws and traditional forestry practices in Germany, similar to what they emphasised in the National Forest Programme (Winkel and Sotirov, 2011). High-level forest policy officials justified the opposition to biodiversity-related changes in forest policy as follows: “*The economic competitiveness and profitability of forestry enterprises are the backbone of the multi-functionality of the forest sector. EU and national policies that regulate ecological sustainability must therefore consider these fundamental economic aspects*”.⁸

4.2.2. State level

In line with powerful governmental agenda to address decreasing

⁶ Interviewees S11, S14, S15.

⁷ Interviewees F3, F21, P13, I1.

⁸ Interviewee F23.

state budgets, substantial structural reforms of the state forest services have taken place since late 1990s. They aimed to establish economically viable state forestry enterprises (Sotirov and Winkel, 2016). In 2005, the Bavarian State Forest Enterprise (BaySF) was established for the economic management of state forests. The forest administration was integrated into (the regional offices of) the Ministry of Food, Agriculture and Forestry. Simultaneously, the state authorities increased (sub-) national and EU-funded subsidies and advisory services for forest owners' associations to increase timber use for the benefits of landowners and forest industry.

The BaySF has operated as a semi-public enterprise with a commercial goal of sustainable timber production. Environmental groups and some state forest officials criticised the BaySF and (bigger) private forest owners for “moving at the limits of sustainability”⁹ and “brutally using everything they can”¹⁰ while neglecting forest biodiversity objectives. Members of the ‘environmental’ coalition demanded an integration of biodiversity conservation into forestry and pressured for 10% of the forests be set aside and left untouched by human use.¹¹

At the same time, forest sector actors in Bavaria opposed the ‘environmental’ coalition's demands to integrate and implement biodiversity policies. This is as “it becomes very problematic when particular goals of 10% set asides are formulated because forest owners go to the barricades and see to it that nothing ecologically valuable that can be protected is found anymore in their forests”.¹² Forestry actors viewed the Natura 2000 network of protected areas under the EU Habitats and Birds Directives not only as contradicting their timber use objectives, but also as “disappropriation which is not financially compensated”.¹³

Accordingly, the Bavarian state government has not approved the 2009 National Biodiversity Strategy thus far. In addition, decision-making power and discretion for the domestic implementation of Natura 2000 in forests was conferred to the state forest administration (Borrass, 2014, 154). State authorities supported a land-use friendly management of “integrative” nature protection in forests that considers landowners' economic interests in timber use (BayStMELF, 2008). Forest sector actors also pushed for “protection through use” to reject the establishment of a new national park (Steigerwald) that was demanded by members of the ‘environmental’ coalition. Instead of a national park with possible economic restrictions, forestry actors established a visitors' centre for experiencing SFM and timber use in this region. Backed by a stable political support by the government of the conservative party, which has been in power since 1966, the ‘production’ coalition of forest sector actors in Bavaria has remained dominant in forest policy.

Since 2007, forest sector actors have increasingly supported objectives of the new high profile Bavarian climate policy. They emphasised the protection of forests against climate change risks such as extreme weather events (avalanches, droughts, floods, storms) and damages from biotic agents (beetles). Forest sector actors also endorsed the climate policy in order to re-use an older forest policy subsidies scheme granted to forest owners to meet traditional forest policy objectives of timber production. In a slightly adapted form (participation, focus areas), the financial scheme mainly targeted measures of active prevention of risks to forestry. These measures included increased timber harvesting, afforestation, building and maintaining of forest roads, the transformation of vulnerable spruce monocultures to more resilient mixed forests, and increased fuelwood use. This instrumental ‘climate’ turn in forest policy pitted the ‘production’ coalition against the ‘environmental’ coalition due to increasing cleavage between them on the issue of timber use vs. biodiversity conservation (Storch and Winkel, 2013).

4.3. The Netherlands

Between 1960s and early 1980s, a ‘production’ coalition of forest sector actors dominated Dutch forest policy. A powerful Forestry Department at the Ministry of Agriculture was in charge of policy-making while the State Forest Service (SBB) was responsible for policy implementation, economic management of state forests, and the support for private forest owners. Together with the timber industry, these actors were (obligatory) members of the Forestry Board (Bosschap) through which they worked together. The forest sector actors shared a policy belief in sustainable timber production in domestic forests. This core belief was formulated as the main policy goal in the 1961 Forest Law. The implementing instruments included subsidies for forest owners (afforestation) and timber production oriented forestry practices. The Forest Law contained only few minimalist obligatory rules, e.g. the obligation to reforest after timber felling.

Over the last three decades, the domestic forest policy regime has gradually but substantially changed. Policy objectives shifted from ‘timber-oriented forestry’ via ‘multifunctional forests’ to ‘forests as part of nature’. Forest policy was fully integrated into and dominated by nature protection policy. Societal changes towards increasing wealth, urbanisation and post-material values of leisure and environmentalism were major drivers of these ecological forest policy changes. The rise of post-materialism in Dutch society triggered massive public support for and membership of environmental NGOs. Moreover, heavy storms and air pollution induced ‘acid rain’ severely damaged Dutch forests during 1970s and 1980s. These events triggered substantial public concern about the ecological vulnerability of the forests that had been mainly used for economic purposes of timber production in the past (Veenman et al., 2009).

In response to these socio-ecological pressures, forestry actors integrated goals of nature conservation, landscape quality and recreation in the 1986 Multi-Year Plan on Forestry (Veenman et al., 2009). In 1993, these new goals were emphasised over timber production in the Forest Policy Plan. Prior to this, forest policy had followed a “[b]asic thought [...] to increase the natural values of the multifunctional forest without sacrificing the goals for wood production” (Van der Maaten-Theunissen and Schuck, 2013, 10). Forest sector actors also shifted traditional forestry practices towards ‘integrated forest management’. It aimed at meeting ecological objectives such as biodiversity conservation and natural processes while practicing extensive timber production (cf. Sotirov et al., 2014).

Since 1990s, the power of environmental actors increased further and outbalanced the traditional political influence of the ‘production’ coalition. Substantial decision-making power over Dutch forests was conferred to the nature protection authorities. In 1991, “the full integration of forests and nature in the Dutch state bureaucracy” (Veenman et al., 2009, 206) took place where the responsible Ministerial Directorate omitted the term ‘forestry’. The Ministry of Economic Affairs which had historically defended the economic interests of forest owners retreated from any authority in forest policy. In result, state subsidies for timber production and planting fast-growing trees ceased. At the same time, nature conservation NGOs (e.g., Natuurmonumenten, De Landschappen) become large non-state forest owners through the purchase of communal and private forests supported by state subsidies (CBS et al., 2014).

Until recently, nature protection policy dominated forest policy. The 1990 Nature Policy Plan formulated nature conservation as the primary goal of domestic forest policy. It introduced the National Ecological Network (NEN) comprised of forest and other nature protected areas and corridors with the aim to protect ecosystems and species. The NEN also implemented the Natura 2000 network of protected areas under the EU Habitats and Birds Directives (Lieverink and van der Zouwen, 2004). Ever since, almost all forests in the country were designated for the NEN and Natura 2000. In addition, eighteen (of now twenty) national parks mostly located in forests were established between 1990

⁹ Interviewee F4, similar in F2, E2, E3.

¹⁰ Interviewee F2.

¹¹ Interviewees E3, E5, F3, F21.

¹² Interviewee F20, similar in F21.

¹³ Interviewee P13, similar in F3, F21, I1.

and 2006.

In result, the National Forest Service (NFS) evolved into the “largest nature conservation agency” in the country (Buijs et al., 2014, 680). As society and political decision-makers saw forests as ‘nature’ and not as ‘commodity’, state subsidies mainly supported forest biodiversity goals. In parallel, the Forestry Board changed from a sectoral neo-corporatist body into a more open organisation with broader representation, advocating also nature conservation and recreational objectives (Veenman et al., 2009, 206).

With the 2000 memorandum “Nature for people, people for nature – Policy document for nature, forest and landscape in the 21st century”, forest policy was further integrated into and subordinated to nature protection policy. The goals of MFF and annual timber production of the 1993 Forest Policy Plan were abolished (MANMF, 2000, 13). Biodiversity conservation prevailed as main objective of forest policy whereas a new quantitative target (750,000 ha) for the NEN until 2020 was set (MANMF, 2000, 47). While subsidies addressed some aspects of MFF, “almost all specific SFM regulation [was] replaced by more general nature regulation” (Van Gossum et al., 2012, 30).

In parallel, the power of forest sector actors in national forest policy significantly decreased. To meet their economic interests, domestic timber traders and timber industries significantly focussed on timber imports. This market shift minimised the forest industry's dependency on shrinking domestic timber production. Reliable timber imports at affordable prices were supported with the EU accession and internal market integration of major timber exporting countries such as Austria, Finland and Sweden in 1995 (Schmidt et al., 2003).

Ever since, forest and other land use sector actors have criticised the implementation of EU and national biodiversity law and policy as “too strict” and “very rigid”. Several forestry interviewees said that this was because the Natura 2000 network of protected areas “limits forest management to a large extent”.¹⁴ The main restrictions were seen in that “the timber harvesting period is too short” and forest owners have to “avoid disturbing nesting birds” and “to oblige to certain static forest types” instead of managing the “dynamic nature of forests”.¹⁵

When right-wing political parties came into power after the national elections in 2010, the new government sought to reverse the “costly” and “paralysing” implementation of biodiversity conservation policy (Buijs et al., 2014, 679 ff.). The government halted the quantitative NEN target, significantly reduced state subsidies, and cut the budget of the NFS up to 70%. The government formulated new policy targets to relax and further decentralise nature protection policies without abandoning them. It adopted a new nature protection law that stipulated less ambitious biodiversity conservation targets regarding the number of species and areas to be protected. The Ministry of Economic Affairs took control of agriculture and nature conservation policy matters (Van Oostenbrugge et al., 2011) by highlighting the “economic potentialities of nature” (Buijs et al., 2014, 683).

After new elections and political turnover in 2012, the ‘economic’ turn in nature protection and forest policy continued. The 2014 Government Vision “The Natural Way Forward” highlighted the contribution of forests to objectives of green economy, timber supply chains and SFM (MEA, 2014, 38). The responsible Ministry of Economic Affairs supported Green Deals and Green Tables within the forest sector. The NFS was urged to “reinforce its position in society and to collaborate with businesses” (MEA, 2014, 7) to meet innovation and entrepreneurship objectives. Forest policy instruments were adjusted towards laissez-fair and market-driven regulation.

The government also aimed to amend the Dutch Forest Law (Boswet) by repealing the binding obligation to replant forest areas after timber felling. This decision pit forest sector actors against

environmental groups. The former believed that the changes in forest law would be “very harmful” for the objectives of “retaining or increasing the forest area” and “domestic forest and timber resources”.¹⁶ The latter argued that the Forest Law should be changed “as the duty to replant contradicts with biodiversity functions”. They believed that forest “clearings should be able to overgrow naturally” and “heather corridors and other nature types are in demand as well”.¹⁷

Forest sector actors have recently sought to increase their political influence and re-emphasise their timber production beliefs through the endorsement of forest-policy supportive climate protection and renewable energy policy objectives. They have stressed that domestic timber production should be promoted as a major contribution to climate protection through the storage of carbon in both managed forests and timber products. They have also stressed that the increased use of fuelwood should also be supported as a major source of renewable energy that benefits the achievement of climate and bioenergy policy objectives (Veenman et al., 2009).

4.4. Sweden

Historically, a powerful ‘production’ coalition dominated Swedish forest policy. Coalition members included the ministry of industry, forest industries federation, forest owner federation, forest and wood trade union, the ministry of agriculture and the national forest administration. These policy actors shared core beliefs in timber production and economic development (Elliot and Schläpfer, 2001). Accordingly, intensive timber production and efficient use of forests were stipulated as the main forest policy objectives of a primary national interest in the Forestry Acts from 1948 and 1979. The main implementing instruments referred to command-and-control regulations such as compulsory management plans and obligations to harvest ‘over-aged’ and to restock ‘unproductive’ forests. These rules were implemented by a tax on logging income that supported subsidies for intensive forestry operations (e.g., afforestation, draining, fertilizing, road-building, using old-growth forests). The main forest policy idea was to maximise timber yields in forests to secure timber supply for the national forest industry. Policy ideas relating to environmental considerations often resulted in aesthetic measures only (Nylund, 2010).

During the 1970s and 1980s, a coalition of environmental NGOs and authorities gained influence in a context of raising importance of international processes on forest biodiversity conservation. These environmental actors criticised the ‘production’ coalition and its forestry policy for running “counter to the growing environmental concern” (Appelstrand, 2012, 191). In a “decade of confrontation” (Enander, 2007, 246), the ‘environmental’ coalition publicly exposed negative socio-ecological impacts of intensive forestry (e.g., large-scale clear-cuts, use of machinery and chemicals) to the general public that held urban environmental values. Faced with negative publicity and NGO's boycotts of domestic timber products Elliot and Schläpfer, 2001(), the forest industry recognised that a lack of integration of environmental aspects into the forest sector would become economically risky due to reputational and market losses (Hysing and Olsson, 2008). At the same time, private forest owners increasingly criticised the ‘straightjacket’ of the ‘hard’ law regulations in the 1979 Forestry Act (Nylund, 2010).

To respond to the pressure built by the ‘environmental’ coalition and the tensions between members of the ‘production’ coalition, the 1991–1994 liberal-conservative government adopted changes in forest policy that the social-democratic government had initiated in 1990. The parliament passed in 1993 a thorough revision of the Forestry Act that the subsequent social-democratic governments continued to support (Hysing and Olsson, 2008). The 1993 Forestry Act contained two

¹⁴ Interviews with forest managers, forestry stakeholders and scientists in the Netherlands.

¹⁵ Interviews with forest managers, forestry stakeholders and scientists in the Netherlands.

¹⁶ Interviews with forest managers, forestry stakeholders and scientists in the Netherlands.

¹⁷ Interviews with environmental groups and scientists in the Netherlands.

major policy changes: first, “[a]n environmental goal was written into legislation, explicitly made to be of equal importance to the former production goal. The second radical change was that the previous policy instruments [...] were abandoned in favour of “softer” means and instruments such as information and education, advice, extension services and voluntary agreements” (Appelstrand, 2012, 191; cf. Schlyter et al., 2009).

Ever since, the Forest Law only obliges forest owners to ensure reforestation three years after timber harvest and to notify the forest authorities if clear-cutting exceeds the size of 0.5 ha (Skogsstyrelsen, 2013). At the same time, forest management decision-making power was delegated from state authorities to private forest owners while state subsidies for forestry were abandoned. With these changes in forest policy and law the so-called Swedish forestry model of ‘freedom through responsibility’ has been established since 1993.

The members of the ‘production’ coalition have viewed the new forestry model as a “sectorial responsibility” for biodiversity aspects that could be implemented through general and voluntary measures. Forest owners and forest industries have been afraid that the 1993 Forest Act would give “environmental values too much weight”.¹⁸ They said that “leaving too much forest for nature protection would negatively impact on the society's living standard in a larger perspective”¹⁹ because “having too many nature reserves would lower the access to timber”.²⁰ Members of the ‘production’ coalition have hence stressed the economic primacy of timber production and other forest uses²¹ in the Swedish forestry model. They appreciated the sectoral power to decide to “harvest timber in areas classified as key biotopes”,²² to have “the opportunity to be economically compensated for key biotopes”²³ or to focus on forest biodiversity “in the mountain area where the forest production values are not that high”.²⁴

At the same time, political decision makers and the Swedish Forest Agency (SFA) have “been wary of presenting any kind of instrument to assess the balance between production and conservation” (Nylund, 2010, 28). The SFA passed through turbulent structural changes fuelled by political disagreement and shifting parliament majorities. After their forest law enforcement power and advisory services were significantly reduced, the SFA and its regional boards have focussed on forest education and research. The agency has taken a middle position in the polarised policy debates between the ‘environmental’ and ‘production’ coalitions.²⁵

In result, forest owners and forest industries had to negotiate with the ‘environmental’ coalition the conflicts between timber production and biodiversity conservation (Appelstrand, 2012, 197) through voluntary, market-driven instruments such as the forest certification. Still, forest certification has been skewed towards the influence and policy beliefs of larger forest industry (FSC certification) or forest owners (PEFC certification). Forest owners have seldom faced a problem to set aside 5% of their forests, as requested by FSC certification, especially when it comes to not using low productive forests around water streams and on bogs, or forests of (economically less valuable) deciduous trees.²⁶ Forest owners have opposed forest certification when they have been forced to leave larger amounts of deadwood in economically valuable coniferous forests and/or to not harvest trees in key biotopes without financial compensations.²⁷

At the same time, the ‘environmental’ coalition and the general public questioned the ‘production’ coalition's sectorial understanding of the ‘freedom through responsibility’ model. Environmentalists ex-

pressed concerns about the limited use of hard law by the SFA and the continuation of traditional intensive forestry practices (Edwards et al., 2013, 69). Members of the ‘environmental’ coalition criticised that Sweden still has a relatively small share of protected forest areas, including Natura 2000 sites and forest legislation lacks provisions for integrating environmental values into production forests (Brukas et al., 2013). They strongly questioned the environmental credibility and effectiveness of FSC and PEFC forest certification in the country (SSNC, 2013).

While environmental consciousness in forestry grew and formal protection and voluntary set-aside increased, intensive timber harvesting has remained dominant in practice, even in forests of high conservation value (EPA, 2012, 8). This has been explained by the power of the ‘production’ coalition and the fact that forest owners and forest industries have prioritised economic development over biodiversity values: “The market is steering, the companies and the forest owner associations, rather than regulations”.²⁸

In 2008, the new right-wing coalition government highlighted the objective of promoting intensified timber production without compromising environmental goals. In the 2011 Forest Vision, the government stressed the primacy of sustainable intensification of forestry, wood processing and innovation. This has been driven by the ‘production’ coalition's endorsement of high profile objectives of EU and national renewable energy and climate protection policies. In this way, forest sector actors have responded to growing market demands for construction timber and fuelwood (Nylund, 2010). This “new” forest policy shift towards intensified timber production has been emphasised by redeployment of and without changes in the forest ‘soft’ law and ‘freedom under responsibility’ model.

5. Comparative analysis and discussion

The within-analysis and cross-case comparison shows that the four countries under study started from a very similar sectoral forest policy regime regardless their different political, socio-economic and environmental contexts. This initial situation in the distant past was characterised by the dominance of strong ‘production’ coalitions in all countries. These coalitions included state forest authorities, forest owners and forest industries that shared core beliefs in timber production and economic management of forests. Their sectoral dominance and core beliefs were reflected in forest policy goals of ‘sustained yield’. These goals were governed through domestic forestry laws and practices using ‘soft’ instruments such as subsidies, advisory services and minimal regulations (regarding reforestation as a precondition for timber production). The Swedish forest law contained further ‘hard’ law obligations in the support of intensive forestry.

In the recent past, forest policy has changed to a different degree and in different directions in the four case study countries as response to absorb pressure to integrate other policy sectors such biodiversity conservation, bioenergy use and climate change. Table 2 is providing an overview of the different types of forest policy change outputs and processes.

From a comparative historical perspective, two main episodes of forest policy change processes triggered by policy integration pressures can be distinguished. They include a forest policy shifts from ‘sustained yield’ towards (i) ‘multi-functionality’ and ‘sustainability’, and even ‘biodiversity’ in the period 1990–2007, and (ii) forest policy (re)turns to ‘sustained yield’ starting between 2007 and 2010.

In the first historical episode, domestic forest policy goals shifted from ‘timber production’ towards ‘multifunctional forestry’ and ‘sustainable forest management’ in all four countries. This referred to forest policy change processes where new ‘biodiversity’ goals were introduced alongside and without abandoning the existing ‘sustained yield’ goals.

²⁸ IP 413, similar in IP 402, IP 410, IP 412.

¹⁸ IP 411.

¹⁹ IP 412.

²⁰ IP 308.

²¹ IP 311, 408, 411, 412, 415.

²² IP 401, similar in IP 410.

²³ IP 311.

²⁴ IP 412.

²⁵ IP 414; similar in Hysing and Olsson (2008).

²⁶ IP 408.

²⁷ IP 310, IP 402, IP405, IP 408, IP 413, IP 414.

Table 2
Overview of forest policy change outputs and processes as responses to policy integration pressures.

	France	Germany/Bavaria	Netherlands	Sweden
Replacement			Traditional forest policy replaced and dominated by nature protection policy. Timber production/MFF goals, instruments, and practices replaced by biodiversity conservation ones (1990–2010). Layering of “new” economic forest policy goals (timber production, SFM, green economy) next to biodiversity goals (2010). Changes in some/old forest policy instruments (e.g., cuts in subsidies, introduction of new green economy partnerships) since 2010.	
Layering	New SFM, MFF and biodiversity goals added to traditional timber production goals in the Forest Reform Act (2001). No abandonment of timber production goals and practices (since 2001). Abandonment of old means (forestry subsidies). Integration and use of new forest biodiversity means (participation, funding contracts, tax reliefs, Forest Territory Charters since 2000s).			New biodiversity goals added to timber production goals in the Forestry Act (1993). Change from ‘hard’ to ‘soft’ law instruments. Introduction of new market-based tools (forest certification) (1993–2011). No abandonment of timber production goals and practices (1993–2011).
Drift		New MFF policy goal added to timber production goal in federal (1975) and state forest laws (1980s). No change in traditional forestry instruments (subsidies/advisory services) and practices (“protection through use”). Economic-oriented forestry reform in Bavaria under SFM/MFF policy (2005). Redeployment of old forestry subsidies to meet old timber production goals in Bavarian forest policy by supporting new climate policies since 2007.		
Conversion	Forest Territory Charters converted from inter-sectoral SFM partnerships to means that support old timber production goals in French forest policy by supporting new bioenergy and climate policies since 2008.			Redeployment of self-regulation and forestry practices to attain old timber production goals in Swedish forest policy by supporting bioenergy and climate policies since 2008.

In the Netherlands, forest policy shifted further where ‘biodiversity conservation’ goals replaced ‘sustained yield’ and ‘multifunctional forestry’ goals.

In Germany/Bavaria, the “multifunctional” expansion in forest policy goals took place without significant changes on the instrumental and practical level to support the new ecological goals. At the same time, the traditional ‘timber production’ goals, instruments, and practices were kept intact and emphasised (*drift*). With these incremental forest policy changes, the ‘production’ coalition of traditional forest sector actors in Germany/Bavaria was able to contain the growing external pressure to integrate ‘biodiversity’ goals that they perceived as threatening to their ‘timber production’-oriented beliefs. The pressure built by the ‘environmental’ coalition through the exploitation of external conditions (e.g., changes in federal government, biodiversity demands by global, EU and national laws and policies) proved insufficient for further changes. The ‘production’ coalition remained dominant in the German forest policy regime. This was because of the strong (ideological) coalitional unity among the state forest administrations, forest owners and forest industries, and the stable support they received by like-minded political institutions. In the light of these insights, the following general hypothesis can be formulated:

Hypothesis 1. When a dominant coalition remains ideologically united, politically powerful, and opposed to incongruent policy beliefs/paradigm, pressure for policy integration will result at most in a low degree of policy change outcome/type of change process known as ‘drift’.

Unlike Germany, the expansion of forest policy goals towards ‘sustainable forest management’ and ‘biodiversity’ in France and Sweden in the 1990s went along with a substantial change in the forest policy instruments (*layering*). These changes referred to the introduction and use of new ‘soft’ law approaches including new participatory instruments (Forest Territory Charters, Natura 2000 forest management) and forest biodiversity funding contracts in France or ‘freedom under responsibility’ and forest certification in Sweden. They also included the abolishment of timber production-oriented subsidies in both countries. Still, traditional economic management goals and practices in forestry were maintained and highlighted. The ‘production’ coalitions in both countries carried out these forest policy changes not only as a response to the growing political influence of and pressure by competing ‘environmental’ coalitions and environmentally oriented society. The ‘production’ coalitions undertook them to address also internal ideological rifts among the state forest administration, forest owners and forest industries. Thus, the following follow up hypothesis can be formulated:

Hypothesis 2. When a dominant coalition remains politically powerful and opposed to incongruent policy beliefs/paradigm, but becomes weakened by internal ideological tensions, pressure for policy integration will result at most in a medium degree of policy change outcome/type of change process known as ‘layering’.

In the Netherlands, a substantial change in forest policy took place between the 1990s and 2010. Traditional goals, instruments, and practices that supported ‘timber production’ and ‘multifunctional forestry’ were replaced by a new powerful ‘biodiversity conservation’ policy regime (*replacement*). These changes were implemented by a dominant ‘environmental’ coalition that attained political power after supportive shifts in the external conditions (e.g., changes in public opinion and societal values towards environmentalism). The policy changes were enabled by ideological tensions and a noticeable breakdown in the actor relations within the ‘production’ coalition. Domestic forest industries switched to timber import strategies as they lost confidence in the capability of public and private forest owners to act as reliable timber suppliers. In parallel, the state forest authorities were reformed to support the new biodiversity priorities. In result, the cooperation among traditional forest sector actors ceased. In turn, this

led to their weak political influence and loss of power in domestic forest policy. We can hence derive the next related hypothesis:

Hypothesis 3. When a previously dominant coalition suffers an internal ideological breakdown, remains no longer politically powerful and is replaced by a competing coalition holding incongruent policy beliefs/paradigm, pressure for policy integration will result in a high degree of policy change outcome/type of change process known as ‘replacement’.

In the second historical episode, domestic forest policies shifted from ‘multifunctional forestry’ and ‘sustainable forest management’ (in France, Germany and Sweden) or ‘biodiversity conservation’ (in the Netherlands) back to the old ‘sustained yield’ policy paradigm. These “new” ‘timber harvesting’ turns on the path of ‘green economy revolution’ can be interpreted as maintenance and further increase of power (France, Germany and Sweden) or a revival (Netherlands) of the ‘production’ coalitions in domestic forest policy.

These forest policy (re-)turns in all countries were achieved through the ‘production’ coalition’s endorsement of congruent forest-relevant goals of high profile bioenergy use and climate protection policies. The latter were strategically used to (re-)emphasise existing ‘timber production’ goals without abandoning ‘biodiversity’ ones. Dominant forest policy actors supported the bioenergy and climate protection goals as they legitimised the maintenance and/or revival of traditional forest policy goals and practices towards timber production. These findings are consistent with recent observations that forest sector actors can strategically adopt a broader environmental agenda where it is compatible with their ‘production’-oriented policy beliefs, in particular as regards climate protection policies. At the same time, they can resist to integrate incongruent environmental policies such as biodiversity conservation (Sotirov et al., 2011; Winkel, 2013; Borrass et al., 2015). Still, specific change processes were at play when bioenergy use and climate protection policies were linked to forest policy in the four case study countries.

In France, the dominant ‘production’ coalition endorsed new forest-relevant bioenergy use and climate protection goals to support a ‘timber harvesting’ turn in forest policy since 2007. Old wood mobilisation targets were (re-)emphasised through strategic redeployment of existing instruments (Forest Territory Chapters, SFM strategies) and forestry practices towards timber production. Similarly, the dominant ‘production’ coalition in Bavaria, Germany redeployed old instruments such as subsidies for timber harvesting, afforestation, and forest risk management in the name of climate adaptation. Since 2007, traditional forest sector actors (re-)emphasised and legitimised old ‘timber production’ goals and practices through new forest-relevant climate policy goals. Similarly, the 2008 ‘timber harvesting’ turn in Sweden went along with redeployment of existing policy instruments. Dominant forest sector actors (re-)used the existing self-regulation instruments and practices to (re-)emphasise intensified timber production in the name of achieving forest-relevant bioenergy and climate protection policy goals. These forest policy changes in France, Germany, and Sweden were achieved through processes of *conversion*. The following hypothesis can be derived from these insights:

Hypothesis 4. When a dominant coalition endorses new policies that are congruent with its traditional core policy beliefs/paradigm, additional pressure for policy integration will result in a low degree of policy change outcome/type of change process known as ‘conversion’.

In the Netherlands, political decision-makers added and maintained “new” timber production goals on the top of and without abandoning (retrenched) biodiversity targets since 2010. This ‘economic’ shift in environmental forest policy went along with changes in the implementing instruments including significant budgetary cuts for the national forest administration and in state subsidies (for biodiversity goals). Forest policy instruments were further adjusted towards *laissez-faire*

rules and non-state market-driven incentives for forestry in the support of green economy. The previously inferior ‘production’ coalition endorsed new bioenergy use and climate protection policies in order to (re-)integrate and stress timber production goals in forest policy and re-gain political influence in the supportive political context. These forest policy changes can be described as a process of *layering*. In light of these results, the following hypothesis can be formulated:

Hypothesis 5. When a previously inferior coalition is (re-)gaining power through political support and endorsement of new policies that are congruent with its traditional core policy beliefs/paradigm, additional pressure for policy integration will result in a high degree of policy change outcome/type of change process known as ‘layering’.

Finally, the results summarised above are showing that the (re-)turns in forest policy in all four countries were enabled through the endorsement of forest-relevant objectives of new high profile bioenergy and climate protection policies congruent with traditional timber production goals, instruments, and practices. These economic forest policy shifts can be seen as competing in relation to the previous integration of environmental goals of biodiversity conservation.

These results support expectations of policy scholars about a paradox that policy incoherence, and hence policy disintegration can result from the integration of two or more policies. This occurs when two or more policy goals cannot be achieved simultaneously because they are incongruent and/or faced with significant trade-offs (‘win–lose’, ‘lose–lose’), or when different policy instruments do not support, but rather work against particular policy goals (Kern and Howlett, 2009). The main argument is that the four policy change processes “differ in terms of their ability to integrate policy outcomes in effective or ‘smart’ cohesive mixes” (Rayner and Howlett, 2009, 103). Rayner and Howlett (2009) suggest that ‘drift’, ‘conversion’ and ‘layering’ tend to result in policy incoherence (cf. Wellstead and Rayner, 2009). In light of these observations, we suggest the final hypothesis as follows:

Hypothesis 6. When a dominant coalition, or a coalition (re-)gaining power, endorses new congruent policies, additional pressure for policy integration will result in retrenchment of previously integrated policies that were incongruent with its traditional core policy beliefs/paradigm.

6. Conclusions

How and why domestic forest policy in France, Germany, the Netherlands, and Sweden has changed as a response to pressures to integrate other policy sectors such as biodiversity conservation, bioenergy use and climate change?

The growing pressure to integrate biodiversity conservation into sectoral forest policy has triggered different policy change processes in all four case countries. They have been driven by a politics of ideas and power struggles between competing policy sector coalitions in the context of changing external factors. Contestations within and between the involved coalitions have resulted in a ‘double shift’ in the forest policy regimes over time.

Initially, decision makers in forest policy and practice largely absorbed the pressure to integrate biodiversity conservation into forest policy. Through processes of conversion, drift, and layering, they sought to oppose and minimise shifts towards biodiversity that were incongruent with their ‘timber production’-oriented policy core beliefs. Later, they supported new high profile bioenergy use and climate change policies resonating with their policy beliefs and used them to achieve ‘production’-oriented forest policy (re-)turns.

These ‘double shift’ processes can be regarded as the resilience of forest sector actors in Europe to absorb, minimise and recover from the pressure built by environmental actors and the general public to integrate international, EU and national biodiversity policy into forest policy. In this context, sectoral resilience is not necessarily equal to ecological sustainability. It refers rather to “the capacity of a system to

absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks” (Walker et al., 2004).

The ability to oppose or minimise contradicting shifts depended on the ability of forestry actors to remain in power and maintain strong and ideologically cohesive coalitions against their biodiversity policy competitors. In a nutshell, coalition strength (power), coalition unity (ideological cohesion), and ideological congruence (compatibility between goals/beliefs of policies/coalitions) can be identified as causal factors behind the different types of policy change processes/outcomes in the quest to respond to policy integration pressures.

We believe that our paper has contributed to the identification of conceptual, theoretical and methodological foundations of the study of policy integration as a policy change process. Still, future research is needed if the main goal is to develop a clearer and more comprehensive understanding of policy integration. We suggest that researchers test our propositions and hypotheses in other empirical cases, and compare their findings with our results. We also suggest policy scholars to further develop, and/or constructively criticise the links between policy integration outcomes and processes, and their causal factors through theoretically grounded and empirically informed research.

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